

**Technical Safety Requirements  
for the Category 2  
U. S. Department of Energy (DOE)  
Material Storage Areas,  
Paducah Gaseous Diffusion Plant,  
Paducah, Kentucky**

**November 2003**

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(DOE) Material Storage Areas,  
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**November 2003**

Prepared for the  
U.S. Department of Energy  
Office of Environmental Management

BECHTEL JACOBS COMPANY LLC  
managing the  
Environmental Management Activities at the  
East Tennessee Technology Park  
Y-12 National Security Complex    Oak Ridge National Laboratory  
Paducah Gaseous Diffusion Plant    Portsmouth Gaseous Diffusion Plant  
under contract DE-AC05-03OR22980  
for the  
U.S. DEPARTMENT OF ENERGY

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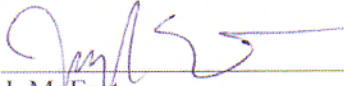
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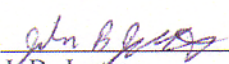
## APPROVALS

Technical Safety Requirements  
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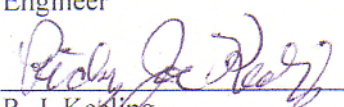
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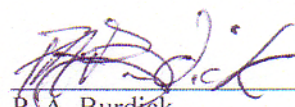
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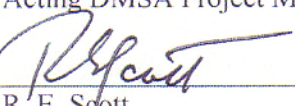
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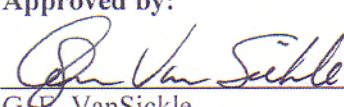
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## REVISION SUMMARY SHEET

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### Summary of Revisions

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<b>Revision Number</b>	<b>Description</b>	<b>Date Issued</b>
R-0	Initial Issue	2/03
R-1	Incorporation of lessons learned. Removed DMSAs containing less than DOE-STD-1027-92 amounts of material from scope. Incorporated results of new criticality evaluations.	8/03
R-2	Revised various sections of the document to reflect corresponding changes that were made in the DSA, to revise specific controls that would be very difficult to implement, and to correct minor technical inadequacies.	9/03
R-3	Revised the availability criteria for the DMSA Facility Manager, revised the name of the DMSA Characterization Program to the DMSA NCS Characterization Program, and added C-310, C-400, C-409, and C-720 to the list of interface facilities.	11/03

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**REVISION 3 SUMMARY SHEET**

**SUMMARY OF REVISIONS**

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- |   |         |  |
|---|---------|--|
| 0 | General | Initial issue to comply with 10 CFR 830, Subpart B. Supersedes KY/EM-175, Rev. 3.  |
| 1 | General | Incorporation of lessons learned. Removed DMSAs containing less than DOE-STD-1027-92 amounts of material from scope. Incorporated results of new criticality evaluations.  |
| 2 | General | Revised the bulleted elements of the NCS Program (section 5.5.2.1), the Hazardous Material Protection Program (section 5.5.2.4) and the Procedures and Training Program (section 5.5.2.7) descriptions. Added a new SMP section 5.5.2.13 titled the DMSA Characterization Program. Revised the availability criteria for the DMSA Facility Manager in section 5.3.1.a. Corrected typo in 5.4.1.2.d. Revised section 5.10, Interface with Other Facilities. |
| 3 | General | Revised the availability criteria for the DMSA Facility Manager (section 5.3.1), revised the name of the DMSA Characterization Program to the DMSA NCS Characterization Program (section 5.5.2.13), and added C-310, C-400, C-409, and C-720 to the list of interface facilities (section 5.10.1).   |

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List of Acronyms, Abbreviations, and Symbols

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AC	Administrative Control
BJC	Bechtel Jacobs Company LLC
CFR	Code of Federal Regulations
DMSA	U.S. Department of Energy Material Storage Area
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
LCO	Limiting Condition for Operation
LCS	Limiting Control Setting
NCS	Nuclear Criticality Safety
NDA	Nondestructive Analysis
PSS	Plant Shift Superintendent
RPP	Radiological Protection Program
SL	Safety Limit
SMP	Safety Management Program
SR	Surveillance Requirement
TSR	Technical Safety Requirements
USEC	United States Enrichment Corporation
USQ	Unreviewed Safety Question

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## **Section 1**

### **Use and Application**

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**1.0 USE AND APPLICATION**

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**1.1 Introduction and Scope**

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**1.1.1 Technical Safety Requirement Applicability**

This document contains the Technical Safety Requirements (TSR) for the Paducah Gaseous Diffusion Plant, U.S. Department of Energy (DOE) Material Storage Areas (DMSAs) containing greater than DOE-STD-1027-92 Category 3 threshold quantities of radiological material. These DMSAs are normally unoccupied Hazard Category 2 nuclear facilities with activities involving hazardous and radioactive material, as described in Chapter 2 of the Documented Safety Analysis (DSA) for the Category 2 DMSAs.

**1.1.2 Methodology**

This TSR document is prepared in accordance with guidance contained in the Code of Federal Regulations, 10 CFR 830, Subpart B, "Nuclear Safety Management." The derivations of TSRs and Operational Controls are contained in Chapter 5 of the *Documented Safety Analysis for the Category 2 U.S. Department of Energy (DOE) Material Storage Areas, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*.

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## **Section 2**

### **Safety Limits**

**2.0 SAFETY LIMITS**

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Safety Limits (SLs) are limits on process variables associated with those safety-class physical barriers, generally passive, that are necessary for the intended facility function and that are required to guard against the uncontrolled release of radioactive materials.

Application of the TSR selection criteria and methodology, which are based on 10 CFR 830, Subpart B, has resulted in the identification of no process variables that require SLs.

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**Section 3/4**

**Limiting Control Settings,  
Limiting Conditions for Operation,  
and Surveillance Requirements**

**3.0/4.0 LIMITING CONTROL SETTINGS, LIMITING CONDITIONS FOR OPERATION, AND SURVEILLANCE REQUIREMENTS**

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**3.0 Limiting Control Settings, Limiting Conditions for Operation**

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Limiting Control Settings (LCSs) are settings on safety systems that control process variables to prevent exceeding SLs. Since no SLs were identified for inclusion in the TSR, no LCSs are required.

Limiting Conditions for Operation (LCOs) are limits established at the lowest functional capability or performance level of equipment required for the safe operation of the facility. The application of the TSR selection criteria and methodology, which are based on 10 CFR 830 Subpart B, has resulted in no systems, components, or parameters being identified that require LCOs.

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**4.0 Surveillance Requirements**

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Surveillance Requirements (SRs) are requirements under a particular LCO that relate to testing, calibration, or inspection of equipment or conditions to ensure that the necessary quality of systems and components is maintained and that facility operations comply with the LCO. Since no LCOs were identified, no SRs are necessary.

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## **Section 5**

### **Administrative Controls**



**5.0 ADMINISTRATIVE CONTROLS**

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**5.1 Purpose**

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- 5.1.1 The purpose of the Administrative Controls (ACs) is to state the provisions relating to the organization and management, procedures, record keeping, review and assessment, reporting, and Safety Management Programs (SMPs) necessary to ensure the safe operation of the Category 2 DMSAs, such that the TSRs are met.
- 5.1.2 Unless otherwise noted, these ACs are applicable to the Category 2 DMSAs at all times.
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**5.0 ADMINISTRATIVE CONTROLS**

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**5.2 Management Responsibilities**

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**5.2.1 Facility Manager****5.2.1.1 The DMSA Facility Manager (or designee) is responsible for the following:**

- a. The overall facility operation and shall delegate, in writing, the succession to this responsibility during any absences.
- b. The operation of the facility in accordance with approved TSRs.
- c. The facilitation and control of physical changes in facility configuration and the coordination of activities of work groups within the facility.
- d. Ensuring that all facility operations are performed under a trained supervisor.

**Note:** This does not require the supervisor to be present at the work site. This means that the supervisor is trained to perform the tasks commensurate with management expectation for the associated facility operations.

- e. Ensuring that personnel conducting facility activities meet established training requirements for their positions.

**5.2.1.2 The DMSA Facility Manager (or designee) has the authority to take emergency actions in accordance with Section 5.6.4.**

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.3 Minimum Staffing**

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- 5.3.1 The following availability criteria are required for the DMSA Facility Manager (or designee):
- a. Available to the Category 2 DMSAs during stored material handling activities. These activities include sampling, packaging, labeling, and movement of stored materials within the Category 2 DMSAs.
  - b. Reachable by telephone at all other times.
- 5.3.2 The DMSA Facility Manager (and designee) shall have contact information (name, title, home, and work telephone numbers) maintained with the Plant Shift Superintendent (PSS).
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**5.0 ADMINISTRATIVE CONTROLS**

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**5.4 Technical Safety Requirements**

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**5.4.1 General**

The TSR shall:

1. Be complied with, except for reasonable action taken in an emergency when this action is immediately needed to protect workers, the public, or the environment from imminent and significant harm and when action consistent with the TSRs is not immediately apparent.
2. Be procedurally controlled to require that changes are:
  - a. Prepared with a submittal package, including a description of the revision, justification for the change, and supporting analyses
  - b. Reviewed and approved by the Contractor
  - c. Approved by DOE prior to the incorporation of the TSR change.

**5.4.2 Compliance**

The contractor is responsible for ensuring that the requirements of the Category 2 DMSA TSR are met. Compliance shall be demonstrated by establishing, implementing, and maintaining the required ACs.

**5.4.3 Proposed Changes**

Proposed changes that meet the criteria of Section 5.4.1 shall be reviewed and approved by DOE prior to implementation.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs**

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## 5.5.1 Procedures

## 5.5.1.1 Scope

Written procedures shall be established, implemented, and maintained covering the following activities:

- a. Operational activities such as radioactive and hazardous material handling and removal.
- b. Emergency and abnormal operating conditions.
- c. Administrative aspects of facility operation such as material accountability.
- d. All programs specified in Section 5.5.2.
- e. Implementation of emergency plans.

## 5.5.1.2 Review, Revision, and Approval

Each procedure for the activities of Section 5.5.1.1, and revisions thereto, shall be reviewed in accordance with Section 5.7.2 and approved in accordance with approved administrative procedures prior to implementation. Temporary changes to the procedures of Section 5.5.1.1 may be made provided that each change is made and reviewed in accordance with approved administrative procedures (including the DOE-approved USQ procedure).

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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**5.5.2 Programs**

The following programs shall be established, implemented, and maintained in accordance with DOE Orders, as applicable.

**5.5.2.1 Nuclear Criticality Safety Program**

The Nuclear Criticality Safety Program (NCS) is implemented to prevent inadvertent nuclear criticality and to ensure proper response to an inadvertent nuclear criticality. The Program is necessary when there are sufficient quantities of fissionable material to present a criticality concern. General limits and controls (engineered and administrative) are applied to fissile material operations to ensure subcritical configurations under all normal and credible abnormal conditions.

The NCS Program includes requirements for postings, review of fissile material operations, and emergency evacuation. Fissionable material operations are evaluated in NCS documents. These documents include limits on controlled parameters (derived from contingency analyses), fissionable material, and operation controls and guidelines, if appropriate, for use of fire-fighting water or other moderators used to suppress fires within or adjacent to moderation control areas.

The following element of the NCS Program is credited and identified in procedures:

- Decommissioning, disassembly, deposit removal, and transport of converters outside the C-331 building are not allowed.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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**5.5.2.2 Radiation Protection Program**

The objectives of the Radiation Protection Program (RPP) are to meet the occupational radiation protection requirements of 10 CFR 835, *Occupational Radiation Protection*, and minimize radiation exposure to all receptors to levels As Low As Reasonably Achievable. The RPP encompasses a wide range of programmatic elements, including radiological monitoring, training, postings, labeling, and procedural requirements. These elements are implemented by a system of radiation protection procedures, together with guidance and technical basis documents. The applicable procedural requirements flow down to subcontractors.

**5.5.2.3 Radioactive and Hazardous Waste Management Program**

The Radioactive and Hazardous Waste Management Program establishes processes to generate, characterize, package, and control radiological and hazardous waste, and protects all workers. Waste management policies, plans, and/or procedures are established, implemented, and maintained, and address (1) waste stream identification/profiling; (2) waste information reporting; (3) waste acceptance criteria; (4) waste characterization, segregation, and recycling; and (5) on-site and off-site treatment, storage, and disposal.

The Transportation Program establishes and enforces processes used to identify, classify, package, mark, label, placard, load, unload, secure, transport and control waste with radiological, chemical, and physical hazards. Packaging and transportation policies, plans, and/or procedures are developed, controlled, and implemented to address the following: (1) hazardous material identification; (2) classification; (3) containerization; (4) hazard communication; (5) personnel training, and (6) oversight of contractors engaged in packaging and transport activities.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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**5.5.2.4 Hazardous Material Protection Program**

The Hazardous Material Protection Program establishes processes to (1) ensure a safe workplace for workers through surveillance, contamination control, and minimization of exposure to hazardous materials; (2) provide for compliance with applicable industry accepted work practices, health and safety regulations, and standards and codes; (3) specify required training to assist workers in performing their jobs safely; and (4) control hazardous and radiological material to preserve the bounding hazardous and radiological material inventory assumptions in the DSA.

The following elements of the Hazardous Material Protection are credited and identified in facility procedures:

- No containerized waste except temporary boundary control station waste may be added to the DOE Retained Waste Material Storage Areas located in buildings C-333 and C-337.
- No more than 922 tons of UF<sub>4</sub> shall be stored in the DMSAs in any one of the buildings C-331, C-333, C-335 and C-337.
- No more than 674 tons of UF<sub>4</sub> shall be stored in any single inside DMSA.

**5.5.2.5 Initial Testing and In-Service Surveillance Testing Program**

The Initial Testing, In-Service Surveillance, and Maintenance Program ensures that safety Structures, Systems, and Components (SSCs) (including Design Features subject to degradation) perform their intended functions. The program integrates work control processes, including the identification, request, planning, implementation of maintenance, and testing with engineering support and required safety and technical reviews. Maintenance of safety SSCs relies on the development and use of work plans that have been properly documented, reviewed, and approved. In-service surveillances are conducted prior to returning safety SSCs to service. The surveillances consist of testing, calibration, and inspection, as applicable, to ensure that the operability is maintained so that operations are within the specified TSRs. The surveillances are performed in accordance with the TSRs, and are typically conducted by the cognizant organization (e.g., Fire Department) for the SSC.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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**5.5.2.6 Fire Protection Program**

The Fire Protection Program develops and maintains effective fire protection and suppression measures for the protection of personnel and facilities in accordance with the Bechtel Jacobs Company LLC (BJC) Fire Protection Program description document, and applicable DOE requirements. The Fire Protection Program features for the facility shall be characterized by fire prevention and fire control, as outlined below:

- a. Fire Prevention
  - i. Control of combustible loading, hot work, and combustible/flammable liquids
  - ii. Facility inspections and finding resolution
  - iii. Oversight of hot work activities
- b. Fire Control
  - i. Fire protection systems (sprinklers and alarms)
  - ii. Testing of fire protection systems
  - iii. Fire Department response
  - iv. Pre-fire plans, including fire-fighting techniques compatible with Category 2 DMSA activities
  - v. Fire watches (as necessary)
  - vi. Fire barriers
  - vii. Compensatory measures for Fire Protection Program elements, as determined by BJC Fire Protection Engineering

The program requirements are implemented by a combination of BJC Project responsibilities and work authorization agreements between BJC and other contractors (e.g., United States Enrichment Corporation [USEC] provides fire protection services for BJC at Paducah).

BJC maintains access to a staff of qualified professional fire protection personnel through work releases with engineering subcontractors. The USEC Fire Department executes the following responsibilities by maintaining sufficient resources to perform: (1) fire ground management; (2) emergency rescue; (3) emergency medical services; (4) interior structural fire fighting; (5) inspection, testing, and maintenance of fixed fire protection systems; (6) portable fire extinguisher inspection, testing, and servicing; and (7) training activities for the USEC fire department personnel. BJC may also perform portable fire extinguisher inspection.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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**5.5.2.7 Procedures and Training Program**

The Procedures and Training Program ensures that procedures are developed, reviewed, verified, validated, and approved for the conduct of normal, abnormal, and emergency operations. In addition, the program ensures that: (1) training is identified and developed to perform work; (2) individuals receive the training necessary to accomplish the task to which they are assigned; and (3) work is performed only by trained and qualified personnel. The Training and Qualification Program is compliant with DOE Order 5480.20A.

The following elements of the Procedures and Training Program is credited and implemented in facility procedures:

- A requirement that facility workers shall be trained on the Category 2 DMSA specific emergency evacuation actions.
- A requirement that fissile material workers and supervisors performing work in Phase 2 DMSAs shall be trained on fissile material handling operations.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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**5.5.2.8 Emergency Preparedness Program**

The Emergency Preparedness Program incorporates planning, preparedness, response, recovery, training, and readiness assurance elements necessary to protect on-site personnel, the general public, the environment, and property in the event of credible emergencies that involve site facilities, activities, or operations. Emergency plans are written and drills are conducted in accordance with the Emergency Preparedness Program.

**5.5.2.9 Configuration Management Program**

The Configuration Management Program establishes company expectations for configuration management of SSCs identified in associated safety basis documents as safety class, safety significant, or defense in depth. Configuration Management ensures that the physical and functional characteristics of the SSCs are consistent with the design and administrative requirements, and are properly identified, controlled, and incorporated into the facility's documentation.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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**5.5.2.10 Conduct of Operations Program**

The Conduct of Operations Program ensures improved quality and uniformity of activities. The Conduct of Operations Program provides workers and operations management a disciplined and formal method for safely performing work. The Conduct of Operations Program is based upon the concept that workers are provided with adequate knowledge of requirements and are disciplined in observing these requirements. Conduct of operations is founded upon (1) training, qualification and use of procedures, (2) discipline and rigor in the conduct of activities at projects, facilities, and activities are applied in the performance of all work activities, and (3) a Work Control Program that ensures work is carried out in a formal and systematic approach that embodies commitment to safety and excellence in operations and to continuous performance improvement.

**5.5.2.11 Unreviewed Safety Question Program**

The USQ process provides a means to preserve the DOE-approved authorization basis documentation for nuclear (and some non-nuclear) operations. The USQ process is defined in a DOE-approved BJC procedure. Proposed changes, modifications, or experiments are reviewed to determine whether a potential USQ exists. Requirements include a systematic review of proposed changes to facilities, activities, or procedures; potential inadequacies (analytical errors or omissions); and proposed tests and experiments. The review will determine whether the proposed activity or potential inadequacy is within the current DOE-approved facility safety basis.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.5 Procedures and Programs (continued)**

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## 5.5.2.12 Quality Assurance Program

The Quality Assurance Program ensures a conceptual and programmatic framework for quality improvement, work processes, and management assessments. Problems are identified, graded by importance, tracked, corrected and evaluated for trends so that recurrence is avoided and performance may be improved. Work processes are fundamental to worker safety with respect to work planning and control. Management assessment, including the BJC Issue Management process, is a tool for continued improvement for BJC-managed DOE environmental facility operations. Corrective Action Plans are a part of the Quality Assurance Program. Corrective Action Plans are required for violations of an Administrative Control and will be developed in accordance with the BJC Quality Assurance Program. The Quality Assurance Program also ensures that sufficient records are maintained to preserve the technical baseline documentation, and that independent audit/verification requirements are supported to determine compliance with the BJC Quality Assurance Program.

## 5.5.2.13 DMSA NCS Characterization Program

The DMSA NCS Characterization Program provides the programmatic safety management requirements necessary for the characterization and disposition of fissile or potentially fissile items located in the Phase 2 DMSAs. Characterization is accomplished through historical documentation review, process knowledge, visual inspection, assay sampling, and/or nondestructive analysis (NDA). Depending upon the assay and mass of a characterized fissile item, it will be classified as Non-fissile or NCS Exempt, NCS Spacing Exempt, or NCS Spacing Controlled. Guidance and criteria for determining the proper classification are established by the NCS Program. Once characterized, this program, in conjunction with NCS Program requirements, delineates how a fissile item will be dispositioned.

For uncharacterized Phase 2 DMSAs, the DMSA NCS Characterization Program establishes access restrictions and limitations on material movement. The program establishes proper response provisions to DMSA emergencies and discovery conditions.

For the NCS characterization and disposition process, this program establishes requirements for (1) minimum staffing and training and qualification for personnel utilized in the characterization process, (2) movement of material within and out of the DMSAs, (3) proper response actions for unintentional movement of uncharacterized or non-NCS exempt items and unsafe discovery conditions, and (4) NDA performance.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.6 General Requirements**

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**5.6.1 Occurrence Reporting**

- 5.6.1.1 A program shall be established, implemented, and maintained for reporting operational occurrences. Written reports and oral notifications shall be submitted to DOE, in accordance with DOE regulations regarding reporting requirements. These reports and notifications shall be prepared in accordance with approved procedures and shall be reviewed and approved by BJC line management prior to DOE submittal.

**5.6.2 TSR Violations**

- 5.6.2.1 Violations of a TSR occur as a result of the failure to comply with an AC. Failure to comply with an AC is a TSR violation when either the AC is directly violated, (e.g., not meeting minimum staffing requirements), or the intent of a referenced program is not fulfilled. To qualify as a TSR violation, the failure to meet the intent of the referenced program would need to be significant enough to render the DSA SMP summary description invalid.

**5.6.3 Response to TSR Violations**

- 5.6.3.1 The following actions are required for response to an AC Violation:

- a. Notify DOE of the violation in accordance with the Occurrence Reporting Program.
- b. Prepare an Occurrence Report.
- c. Prepare a Corrective Action Plan describing the steps leading to compliance with the AC.
- d. Perform and document a technical evaluation, if appropriate, of the AC violation to determine if any damage occurred.

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(continued)

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.6 General Requirements (continued)**

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**5.6.4 Conditions Outside TSR**

Emergency actions that depart from an approved TSR may be taken when no actions consistent with the TSR are immediately apparent, and when these actions are needed to protect workers, the public, or the environment from imminent and significant harm. Such actions must be approved by a person in authority, as designated in the TSR. This authority is delegated to the Facility Manager (or designee).

In an emergency, if a situation develops that is not addressed by the TSR, the Facility Manager (or designee) is expected to use their training and expertise to take actions to correct or mitigate the situation. Also, the Facility Manager (or designee) may take actions that depart from a requirement in the TSRs provided that (1) an emergency situation exists; (2) these actions are needed immediately to protect the workers, public, and environment from imminent and significant harm; and (3) no action consistent with the TSR can provide adequate or equivalent protection. If emergency action is taken, both a verbal notification shall be made to DOE-Oak Ridge, and a written report shall be made to DOE-Oak Ridge, as soon as practical.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.7 Reviews and Assessments**

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**5.7.1 General**

This section describes the methods established to conduct independent reviews and audits of all activities associated with maintaining compliance with the TSR. These methods may include creating an organizational unit, a standing unit, or an ad hoc committee, or assigning individuals capable of conducting these reviews. When an individual performs a review function, a cross-disciplinary review determination may be necessary. Individual reviewers shall not review their own work or work over which they have direct responsibility. Management shall specify the functions, organizational arrangement, responsibilities, appropriate qualifications of reviewers, and reporting requirements of each functional element or unit that contributes to these processes.

The goal of the review and assessment program is to provide a cohesive program to provide senior level facility management with an assessment of facility operation and to recommend actions to improve nuclear safety and facility reliability. The program should include an assessment of the effectiveness of reviews conducted by facility staff. The goal of the independent oversight is to provide an outside look at day-to-day operations. The goal of the independent program is to verify compliance with established Contractor policies and programs.

**5.7.2 Facility Reviews**

The Facility Manager (or designee) shall review activities affecting the safe operation of a nuclear facility to ensure that day-to-day activities are conducted in a safe manner. These reviews shall include, at a minimum, the following elements:

- a. USQ Determination
- b. Procedures and Programs (required by the TSR)
- c. Facility changes and modifications
- d. TSR changes
- e. Facility operation, maintenance, and testing
- f. DOE and industry issues of safety significance
- g. Other safety-related issues

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.7 Reviews and Assessments (continued)**

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**5.7.2 Facility Reviews (continued)**

Additional reviews may be performed by individual reviewers or by a review committee. If individual reviews are utilized, reviewers shall not perform the above required review of their own work or work for which they have direct responsibility. Reviewers shall possess sufficient education, experience, expertise, safety analysis, and technical training in the review subject area. When performing reviews, a cross-disciplinary determination is necessary. If a cross-disciplinary review is deemed necessary, personnel of the appropriate discipline shall perform such reviews.

**5.7.3 Independent Oversight**

Reviews shall be conducted by a group independent of the facility. This program should include a review of the following elements:

- a. USQ Determination
- b. Proposed changes to the TSR
- c. All violations of codes, DOE Orders, and procedures that have safety significance
- d. Occurrence Reports
- e. Staff performance
- f. Significant unplanned radiological or hazardous material releases
- g. Unanticipated deficiencies of SSCs that could affect Nuclear Safety
- h. Significant operating abnormalities

**5.7.4 Self-Assessments**

Periodic management self-assessments shall be performed in accordance with the Quality Assurance Program to verify effective implementation.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.8 Staff Qualifications and Training**

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**5.8.1 Qualification**

A program shall be established to ensure that the identified facility staff meets established qualification requirements for their positions. This program shall adhere to the qualification requirements established in accordance with the Procedures and Training SMP.

The Facility Manager (and designees) is the only staff position with Qualification requirements specifically for the Category 2 DMSAs.

**5.8.2 Training**

An initial training and retraining program for the identified facility staff shall be established and maintained. This program shall adhere to training requirements established in accordance with the Procedures and Training Program.

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**5.0 ADMINISTRATIVE CONTROLS**

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**5.9 Record Retention**

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- 5.9.1 The following records shall be retained for the period specified by the BJC Records Inventory and Disposition Schedule in accordance with the Quality Assurance Program:
- a. Records and logs of Category 2 DMSA operation.
  - b. Records and logs of principal maintenance activities, inspections, repairs, and replacements of principal equipment items related to nuclear safety.
  - c. All reportable events/occurrences.
  - d. Records of surveillance activities, inspections, and calibrations required by TSRs.
  - e. Records of changes made to procedures.
  - f. Records and drawing changes that reflect Category 2 DMSA design modifications made to systems and equipment described in the DSA.
  - g. Records of radiation exposure for all individuals entering radiologically controlled areas.
  - h. Records of training and qualification for current members of the facility Operations staff.
  - i. Records of USQ Determinations performed for changes made to procedures or equipment.
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**5.0 ADMINISTRATIVE CONTROLS**

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**5.10 Interface With Other Facilities**

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5.10.1 Some Category 2 DMSAs are located within the 12 RAD Zone boundary for the USEC fixed CAAS units in Buildings C-310, C-331, C-333, C-335, C-337, C-400, C-409, and C-720. For these DMSAs, BJC workers must comply with the USEC fixed CAAS requirements stated in the USEC TSRs.

5.10.2 BJC workers are required to follow the emergency action plan, which includes USEC fixed CAAS requirements stated in USEC-01, *Application for United States Nuclear Regulatory Commission Certification*.

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## **Section 6**

### **Design Features**

## 6.0 DESIGN FEATURES

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Design Features are normally passive characteristics of the facility not subject to change by operations personnel (e.g., shielding, structural walls, relative locations of major structures and components, installed poisons, or special materials in specific applications). This section is needed so that any change in these design characteristics that could affect the safe operation of the facility will be done consciously, analyzed for safety implications, and approved at the appropriate level prior to making the modification.

The areas of the Design Features credited in the safety analysis are passive components, configuration, and/or physical arrangement. The feature and/or function being controlled is the actual design or function of the SSCs. As such, the Design Features are controlled to the existing drawings, specifications, Code of Record, etc. The Design Feature or function is being controlled to ensure that, if the SSC is modified or replaced, the modification or new equipment has essentially the same feature, form, fit, and function as the original equipment. Typically, the material, construction, or the actual physical dimensions of the item are controlled as a Design Feature. As such, the ACs of the Configuration Management, Quality Assurance, Initial Testing, In-Service Surveillance and Maintenance, and USQ Programs apply to these Design Features.

No Design Features are credited in the DSA as performing a safety function.

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